



NextGen *is Working for*
America:
Chief NextGen Officer Update to Congress

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NEXTGEN IS WORKING FOR AMERICA:

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The benefits of NextGen, a comprehensive and critically needed overhaul of our nation's air transportation system, are becoming increasingly apparent to users of the National Airspace System (NAS) every day. Over the past year, we have made notable achievements in every phase of our transformative modernization effort, which is fundamentally changing the way we see, navigate and communicate in the NAS. These technological advances are being complemented by new procedures and policies, and matched with the training necessary to ensure success. The NextGen transformation is reducing delays, enhancing safety and decreasing the impact of aviation on our environment. In short, NextGen is forever changing the way we fly.

We estimate NextGen improvements will provide a total \$134 billion in benefits between 2010 and 2030. Improvements we have already implemented in the NAS have generated an estimated \$1.6 billion in benefits to date and are expected to grow to another \$11.4 billion in the future. These future benefits come from reduced flight delays, improved flight efficiency and cost savings. The significant, tangible and measurable benefits we are now seeing in NextGen would not have been possible without the close collaboration of our stakeholders — air traffic controllers, pilots, labor unions, the airlines, general and business aviation, manufacturers and vendors.

DATA COMMUNICATIONS IS MOVING FORWARD

In the wake of successful operational trials at Newark and Memphis, Data Communications (Data Comm) tower departure clearance services became operational at three key sites in summer

2015. Since then, the service is being introduced to additional airports at an impressive rate. Data Comm tower services are active at 26 airports, including all three New York-area airports and Los Angeles. The program calls for Data Comm to be deployed to 56 towers by 2019, but we are well on our way to meeting that goal this year — three years ahead of schedule.

Data Comm supplements radio voice communication between pilots and air traffic controllers with digital, text-based messages. It enables the transmission of complex instructions from a controller to be quickly and accurately loaded into an aircraft's flight management system upon acceptance by the flight crew. Industry has designated Data Comm as a priority. The FAA is using the program to modernize our airspace and make flights more efficient.

A number of air carriers participated in the Data Comm trials at Newark, including UPS, FedEx, United Airlines, Scandinavian Airlines and British Airways. Between 60 and 80 flights per day used Data Comm at Memphis and Newark, enabling the FAA to gather operational information to improve the final system.

As part of our ongoing collaboration with industry, a significant number of air carriers have committed to equip for Data Comm, including Alaska Airlines, American Airlines, Delta Airlines, FedEx, JetBlue, Southwest Airlines, United Airlines, UPS and Virgin America.

Data Comm will save operators an estimated \$10 billion over the 30-year life cycle of the program and the FAA about \$1 billion in future operating costs. Passengers will

notice faster departures and fewer delays, particularly during inclement weather.

EQUIP 2020 DRIVES AUTOMATIC DEPENDENT SURVEILLANCE– BROADCAST (ADS-B) INSTALLATIONS

When aircraft operating in most controlled airspace have equipped with ADS-B Out on January 1, 2020, air traffic controllers will have an improved, real-time view of air traffic. The improved accuracy, integrity and reliability of ADS-B satellite signals over radar means controllers eventually will be able to safely reduce the minimum separation distance between aircraft and increase capacity in the nation's skies. Equipped aircraft will be able to fly more directly from point A to B, saving time and money, and reducing fuel burn and emissions. For general aviation aircraft, ADS-B provides an additional layer of safety with improved situational awareness and search and rescue.

We are partnering with the aviation industry through the Equip 2020 Working Group to resolve the barriers to equipage that industry identified during our October 2014 Call to Action. We have made it possible for aircraft owners who equipped with early generation position sources to realize return on their investment by granting an extension for upgrading those systems with new navigation receivers. U.S. airlines are working on and sharing with us their equipage plans, and many have their plans already in place to ensure they are equipped by the end of 2019 to meet the firmly established mandate date.

We are also partnering with our Equip 2020 colleagues to provide general aviation aircraft owners the tools they need to equip. We launched the Equip ADS-B website (www.faa.gov/go/equipadsb) — a one-stop resource for information on ADS-B airspace, available equipment solutions, and answers to frequently asked questions. Working with manufacturers, Equip 2020 championed more affordable solutions and is coming up with equipage solutions for the many different kinds of aircraft in America's fleet. This year, we are also offering a rebate to help owners of fixed-wing, single-engine piston aircraft equip.

ADS-B has been completely integrated into the En Route Automation Modernization (ERAM) platform and is in the process of being integrated with the Terminal Automation Modernization and Replacement (TAMR) program, so that the FAA will be well-prepared by the time the ADS-B Out mandate takes effect in 2020.

ERAM is a highly advanced automation system used by air traffic controllers to manage high-altitude traffic, and is in use at all 20 en route traffic control centers in the continental United States. It is the platform necessary for NextGen programs such as ADS-B, data sharing, digital communications and trajectory-based operations.

TAMR upgrades multiple air traffic control technologies into a single, state-of-the-art platform: the Standard Terminal Automation Replacement System (STARS). It enables NextGen capabilities such as ADS-B in the airport terminal environment.

PERFORMANCE BASED NAVIGATION HELPS OPERATORS REDUCE COSTS

Performance Based Navigation (PBN) has penetrated all aspects of the NAS from small and regional airports to major hubs and metroplexes — major metropolitan areas where several airports are located close to one another in congested airspace.

PBN implementation is on or ahead of schedule in locations across the country. We have implemented scores of new satellite-enabled air traffic navigation procedures in the Washington, D.C., and Northern California metroplexes, where nearly 80 percent of arrivals are gaining the benefits of PBN, primarily through the use of Optimized Profile Descents that reduce level offs, fuel burn and emissions. Our Atlanta and Charlotte metroplex commitments are also both on track. We now have more satellite-enabled procedures in the NAS than radar-based procedures. This means reduced flight times, millions of dollars in fuel savings, decreased carbon emissions and fewer flight delays.

PBN uses satellites and equipment on board the aircraft for navigation procedures that are more

precise and accurate than those using standard avionics and ground-based navigation aids. PBN comprises Area Navigation (RNAV) and Required Navigation Performance (RNP). RNAV permits aircraft to fly any desired flight path within the coverage of ground- or space-based navigation aids, within the limits of aircraft avionics, or with a combination of these. RNP is a more advanced form of RNAV that includes an onboard performance-monitoring and alerting capability.

PBN benefits being realized by JetBlue represent an excellent example of collaboration between the FAA, an operator, an airport and the Port Authority of New York and New Jersey. RNAV procedures at New York John F. Kennedy airport, a primary hub for JetBlue, have proven incredibly useful during periods of constraint. Since its introduction in 2012, one such procedure has increased arrival utilization of runway 13L as much as 50 percent. Nearly 6,000 RNAV RNP procedures have been flown since January of this year.

Through PBN, improvements at the two largest Houston-area airports save operators \$5.3 million annually, according to an FAA analysis in 2015. Arrivals from San Antonio save an average of 3 nautical miles and 41 seconds due to more efficient descent procedures.

The FAA works closely with local communities, airports and air carriers nationwide to design more PBN routes that provide the greatest possible benefit in all phases of flight: departure, en route, final approach and arrival.

Moving forward, the FAA is focused on developing near-term traffic-flow management tools for PBN that can be implemented in the next three years. When prioritizing PBN activities, the agency is focusing on benefits that provide the biggest benefit to the largest number of operators.

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NEXTGEN ADVISORY COMMITTEE CRITICAL TO OUR SUCCESS

The FAA has worked hand-in-hand with the NextGen Advisory Committee (NAC) to identify aviation priorities within the agency's work plans to ensure the capabilities and procedures that matter most are implemented as soon as possible (www.faa.gov/nextgen/snapshots/priorities/). Working together, we have executed a plan and proved that we can deliver on near-term NextGen capabilities. Our success in delivering priority capabilities demonstrates the power of what we can accomplish by working as one.

We created and executed an ambitious deployment plan. We have completed more than 60 commitments, delivering a multitude of capabilities and benefits to NAS users across the country. As Delta's Richard Anderson, chairman of the NAC, recently noted, "The FAA could deliver all of the capabilities [it has planned], but industry isn't yet ready to take advantage of them." This success has proven our ability to deliver near-term capabilities and implement programs, but there is more work to be done — on both sides. The NAC will continue to play a vital role in ensuring industry's contributions to NextGen success.

We will continue to work with the NAC to identify additional near-term commitments, and to align our collective planning for the future. For example, the NAC recently endorsed the FAA's strategy for transitioning to a PBN-centric NAS over the next 15 years. The success of this endeavor will require a sustained, long-term focus on collaboration across aircraft operators, manufacturers, airport operators and the communities that surround airports.

Continued collaboration with the NAC on this and other topics will ensure that the entire

stakeholder community benefits from NextGen and that we all gain from our shared investment.

NEW CHALLENGES DRIVE INDUSTRY COLLABORATION

As we continue to implement NextGen, much of our planning must take into account the demands of an evolving NAS — one which must accommodate new entrants, such as Unmanned Aircraft Systems (UAS), and one which must be ready to stave off new threats, such as cyber attacks. These new opportunities and challenges require greater levels of collaboration with a broader range of stakeholders.

The FAA works with other federal agencies to safely accelerate the integration of civil UASs into the NAS. While the current focus is on small UAS operations, we recognize the enormous potential offered by larger UASs and will continue working toward accommodating these systems as well. The FAA has also partnered with NASA, the Department of Homeland Security, the Department of Defense and the Department of Commerce to establish the Interagency Core Cyber Team, which is actively engaged in aviation cybersecurity research and development.

To align NextGen with other large, international modernization efforts, the FAA works with the International Civil Aviation Organization to leverage air traffic management knowledge and to ensure that NextGen remains the center of global harmonization.

ADVANCING ON SCHEDULE

The extraordinary work that has been accomplished with NextGen is a testament to government-industry collaboration, steady congressional funding and tireless work by our stakeholders. Continued sufficient and stable funding for NextGen will allow the FAA to sustain this momentum.

The foundational infrastructure for NextGen is complete, but we must continue to maintain these elements in equilibrium for the transformation of our nation's air transportation system to advance and remain on schedule. With the support of the entire stakeholder community, the success that we have enjoyed with NextGen — and the consequential benefits in air travel efficiency, safety and a cleaner environment — will continue to grow.



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